California Monthly Climate Summary
September 2012

Weather Highlights

September 2012 was a hot, dry month for California. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 70.1°F which is 3.0°F higher than the long-term average of 67.1°F. This is the fourth warmest September in 118 years of record and the 5th year in a row that September was above the 1949-2005 average. Of those past 5 years, 3 are in the top 5 warmest Septembers. With a statewide average of 0.016 inches, precipitation was 3% of average and is the driest September in 118 years of record. The previous record was set in 2008 with a value of 0.017 inches. Water year 2012 has seen 9 months of below average precipitation and 8 months of above average temperature. For the water year, the California Climate Tracker shows a statewide precipitation total of 15.17 inches which is only 66% of the long-term average and 10th driest year in 118 years of record. Plots of the last 12 months of mean temperature and precipitation relative to the historical distribution are shown at the end of the report. Regional ranking plots are also shown.

September started with high pressure sitting over the four corners region of the US and a low pressure system sitting offshore of northern California. This resulted in cooler temperatures in the north and hot conditions in the south. In the second week of the month, moisture from the remnants of Tropical Storm John and monsoon moisture moved into the State resulting in some scattered thunderstorms. Later in the week a stronger surge of monsoonal moisture brought severe thunderstorms and flash flooding to parts of Southern California. Warm and dry conditions prevailed into the third week with the exception of a small disturbance that brought scattered light rain to the North Coast. The month closed out with hot temperatures across the state with highs surpassing 100 °F in many locations.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 48 temperature records tied or broken and 2 precipitation records set or tied for the month. For water year 2012, there were 803 temperature records and 152 precipitation records set or tied. The San Diego Weather Forecast Office recorded records on 114 days of the 366 days of water year 2012. Plots of the number of monthly temperature records and precipitation records are included at the end of the document. Of the 48 temperature records set in September, 30 were for new high maximum temperatures and 16 were for new high minimum temperatures. Records were set over 15 days of the month. One of the two low minimum temperature records set this month was in Sacramento at the Executive Airport on the 2nd when the low reached 50 °F. This tied the old record set in 1935. On September 14th, downtown Los Angeles set a new high temperature record of 100°F breaking the old record of 99°F set in 1894. This was the last day in September to have a high temperature record less than 100°F for this station. On the same day UCLA broke a 1937 high temperature record with a reading of 97°F. The old record was 92°F. At Furnace Creek in Death Valley, September 2012 averaged 96.3°F which broke the

old record of 95.7°F making this year the hottest September in Death Valley. Records for this location date back to 1911.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 14 stations recorded a minimum temperature below freezing while 57 stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC stations is also shown at the end of the summary.

Precipitation in September was below average for the entire State. For the CDEC precipitation gages, the largest amount of precipitation recorded was at Lake Arrowhead in the South Lahontan region with 0.64 inches. This is 75% of the average precipitation for this station for September. At the other end of the spectrum, 64 stations reported zero precipitation for the month. For the CIMIS network, Sisquoc in Santa Barbara County topped the precipitation charts with 4.98 inches for the month and 93 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network.

The 8-Station Index for northern California precipitation recorded 0.0 inches in September. On average, 0.9 inches of precipitation is recorded for the 8-Station Index for the month. A plot of the 8-Station Index and the San Joaquin 5-Station Index are shown at the end of the document. For the water year the 8-Station Index totaled 41.6 inches which is 83% of average. The 5-Station Index totaled 25.0 inches for the water year which is 61% of average. Statewide, the average precipitation for the month was 9.7% of the long-term average based on the California Data Exchange Center (CDEC) gages. For the water year, the CDEC gages averaged 77%. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

CoCoRaHS Update

September 2012 completes California's fourth year with CoCoRaHS – the Community Collaborative Rain, Hail and Snow Network. This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns. A map from September 6th, 2012 is shown at the end of the document. Currently, California has 886 volunteers signed up spanning 53 of California's 58 counties. The counties without volunteers are Alpine, Colusa, Glenn, Modoc, and Tuolumne. The county with the most volunteers is Sonoma with 93 volunteers. For the month of September, 7,086 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA for the month was in San Diego County where 1.35 inches was recorded on 09/11/2012. No snowfall reports were recorded. No hail reports were submitted either. For more information on CoCoRaHS, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

The WSI for WY2012 for the Sacramento Basin fell into the below normal category and the San Joaquin fell into the dry category. Water supply information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

The maps for California for August 28, 2012 and September 25, 2012 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. As of the September 25th depiction, 1.14% of the State is depicted in the D3 or extreme drought category, 21.13% of California is depicted in the D2 or severe drought category, 47.14% of California is depicted in the D1 or moderate drought category. An additional 18.64% of the state is depicted as D0 or abnormally dry. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for October through December from NOAA depicts California in persisting drought throughout most of the State with development of drought conditions expected in the northern part of the State. This forecast is based primarily on climatology and forecast models. More information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html. Updates are provided twice per month.

For more information on drought conditions in California, visit http://www.water.ca.gov/waterconditions/.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) has transitioned to neutral conditions. Equatorial sea surface temperature anomalies for the tropical Pacific have moved towards positive values with the Niño 3.4 region posting a reading of 0.2°C anomaly at the end of September. The July through September 3-month running mean of the Ocean Niño Index (ONI) is 0.3. Five consecutive ONI values need to be above the 0.5 threshold need to be observed for classification as an El Niño event (five consecutive values below the threshold o f -0.5 for conditions to be classified as a La Niña event). Most forecast models have the tropical sea surface temperatures moving to El Niño conditions during the second half of 2012. More information can be found at the Climate Prediction Center's web site: http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/. Updates are posted weekly. The latest three month outlook (October through December) from NOAA indicates equal chances of above average, near average, or below average temperatures for the whole State except the southeast desert region which is expected to have a greater chance of

above-normal temperatures. For precipitation, equal chances of above, near, or below normal precipitation are forecast for the southern half of the State while the northern half of the state is forecast to have an increased probability of below normal precipitation. Outlook plots and discussions can be found at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

September 2012 saw further development of crops throughout the State and an increase in harvest activity. Cotton and rice crops were continuing to develop and were being rated mostly good to excellent. Alfalfa continued to be cut and baled. Some hay fields were treated for insects while overall insect pressure was reported to be light. Peach, nectarine, and plum harvests continued while apricot orchards began to be pruned. Almond and pistachio harvests continued while some harvest of some early varieties of walnuts began. Raisin grapes were either vine dried or dried on trays. White wine grapes were beginning to be harvested while red wine grapes continued to develop. Vegetable harvests of eggplant, cucumbers, peppers, squash, tomatoes and other vegetables continued. Some planting of broccoli began with some fields already starting to emerge. Pumpkin harvest began in San Joaquin County. Range conditions continued their deterioration with ratings in the fair to poor category. Supplemental feeding continued to increase. Fire danger remained high due to hot, dry conditions. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)

High Temperature – 113°F (Buttercup, Colorado River Desert)
Low Temperature – 0°F (Big Meadows, Tulare Basin)
High Precipitation – 0.64 inches (Lake Arrowhead, South Lahontan)
Low Precipitation – 0.0 inches (64 stations)

Statewide Extremes (CIMIS)

High Average Maximum Temperature – 103.8^0F (Salton Sea East, Imperial County)
Low Average Minimum Temperature – 36.0^0F (Alturas, Modoc County)
High Precipitation – 4.98 inches (Sisquoc, Santa Barbara County)*
Low Precipitation – 0 inches (93 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	Sep	Oct-Sep	Stations	Sep	Oct-Sep	Sep	Oct-Sep
North Coast	0.27	5	5	5	17	9	9	2.0%	91%
SF Bay	0.03	2	1	1	6	1	1	4.3%	82%
Central Coast	0.06	3	2	2	11	5	5	18.6%	65%
South Coast	0.06	3	3	3	14	10	9	25.1%	66%
Sacramento River	0.26	5	5	5	42	26	26	3.2%	78%
San Joaquin River	0.12	6	6	6	24	15	14	21.6%	68%
Tulare Lake	0.07	5	5	5	28	25	25	7.6%	75%
North Lahontan	0.04	3	3	3	13	6	6	28.2%	58%
South Lahontan	0.06	3	3	3	15	4	3	12.5%	57%
Colorado River	0.03	1	1	1	6	4	3	19.5%	83%
Statewide Weighted Average	1	36	34	34	176	105	101	9.71%	77%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	23	44.7	65.5	89.9
SF Bay	8	46.4	70.0	93.0
Central Coast	11	49.7	71.9	97.6
South Coast	38	54.3	75.9	100.2
Sacramento	61	47.4	69.6	92.4
San Joaquin	40	48.1	68.1	89.8
Tulare Lake	16	40.4	59.2	78.7
North Lahontan	16	38.1	57.2	75.7
South Lahontan	14	42.8	63.2	83.6
Colorado River Desert	7	65.8	87.1	107.3
Statewide Weighted Average	234	46.7	67.8	90.5

End-of-September Reservoir Storage by Hydrologic Region

Storage in Thousand Acre-Feet (taf)

End-of-July Reservoir Storage	Number of Reservoirs	Average Storage (taf)	2012 Storage (taf)	% of Average
North Coast	6	1,988	2,132	107%
San Francisco Bay	17	420	429	102%
Central Coast	6	546	512	94%
South Coast	29	1,326	1,298	98%
Sacramento	43	9,912	9,648	97%
San Joaquin	34	6,399	6,072	95%
Tulare	6	678	398	59%
North Lahontan	5	507	585	115%
South Lahontan	8	279	233	84%
Total	154	22,058	21,308	97%

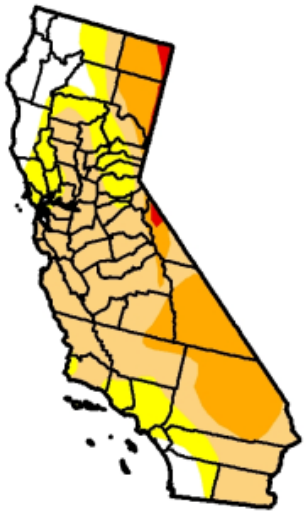
U.S. Drought Monitor

August 28, 2012
Valid 7 a.m. EST

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.74	88.26	69.44	23.05	1.14	0.00
Last Week (08/21/2012 map)	11.30	88.70	69.20	23.30	0.29	0.00
3 Months Ago (05/29/2012 map)	15.89	84.11	58.89	22.60	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (08/23/2011 map)	92.12	7.88	0.00	0.00	0.00	0.00



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://droughtmonitor.unl.edu

Released Thursday, August 30, 2012
Brian Fuchs, National Drought Mitigation Center

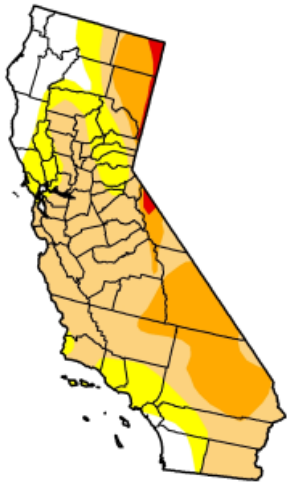
U.S. Drought Monitor

September 25, 2012
Valid 7 a.m. EST

California

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	11.95	88.05	69.41	22.27	1.14	0.00
Last Week (09/18/2012 map)	11.95	88.05	69.09	22.27	1.14	0.00
3 Months Ago (06/26/2012 map)	15.89	84.11	59.51	22.76	0.00	0.00
Start of Calendar Year (12/27/2011 map)	33.91	66.09	5.41	0.00	0.00	0.00
Start of Water Year (09/27/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00
One Year Ago (09/20/2011 map)	89.14	10.86	0.00	0.00	0.00	0.00



Intensity:

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- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

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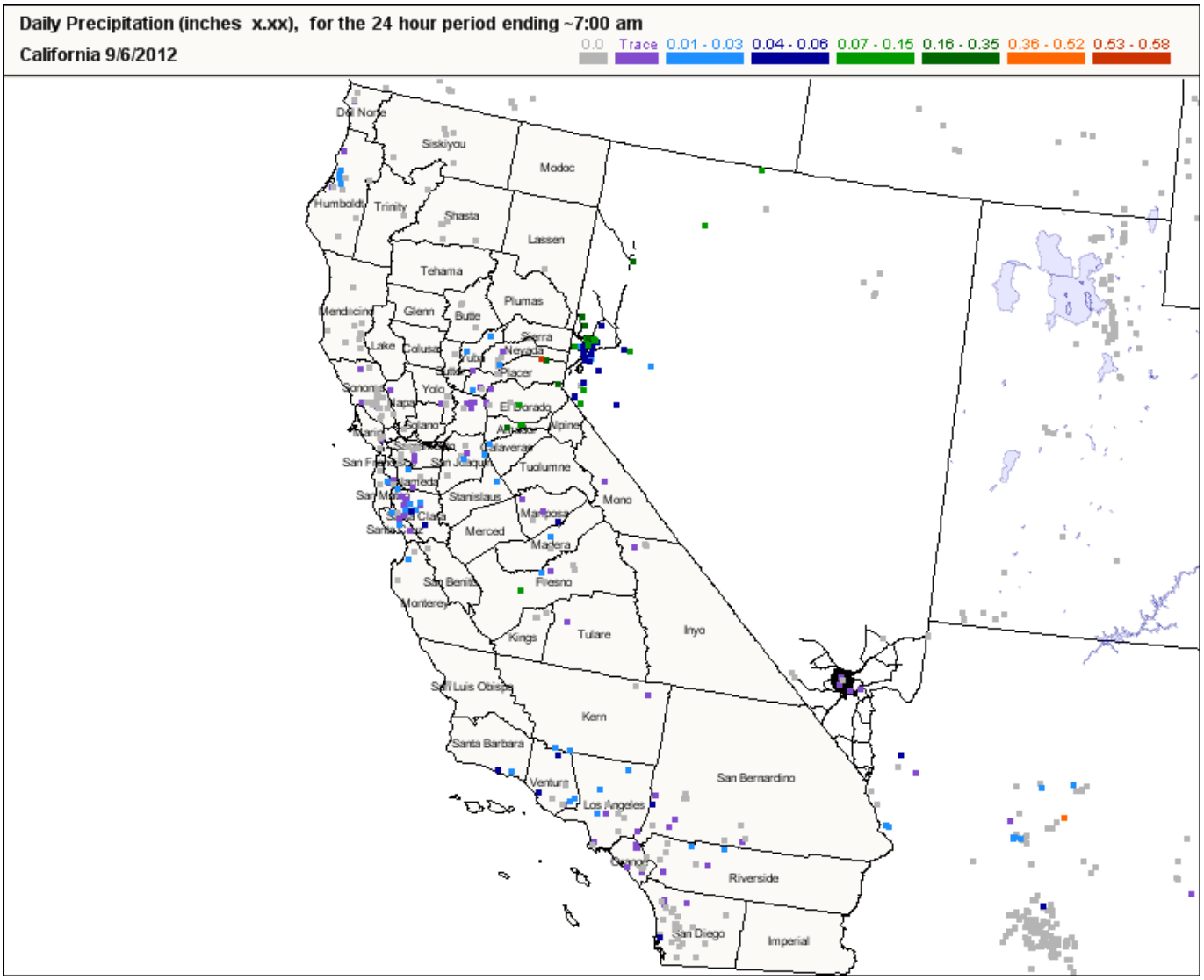
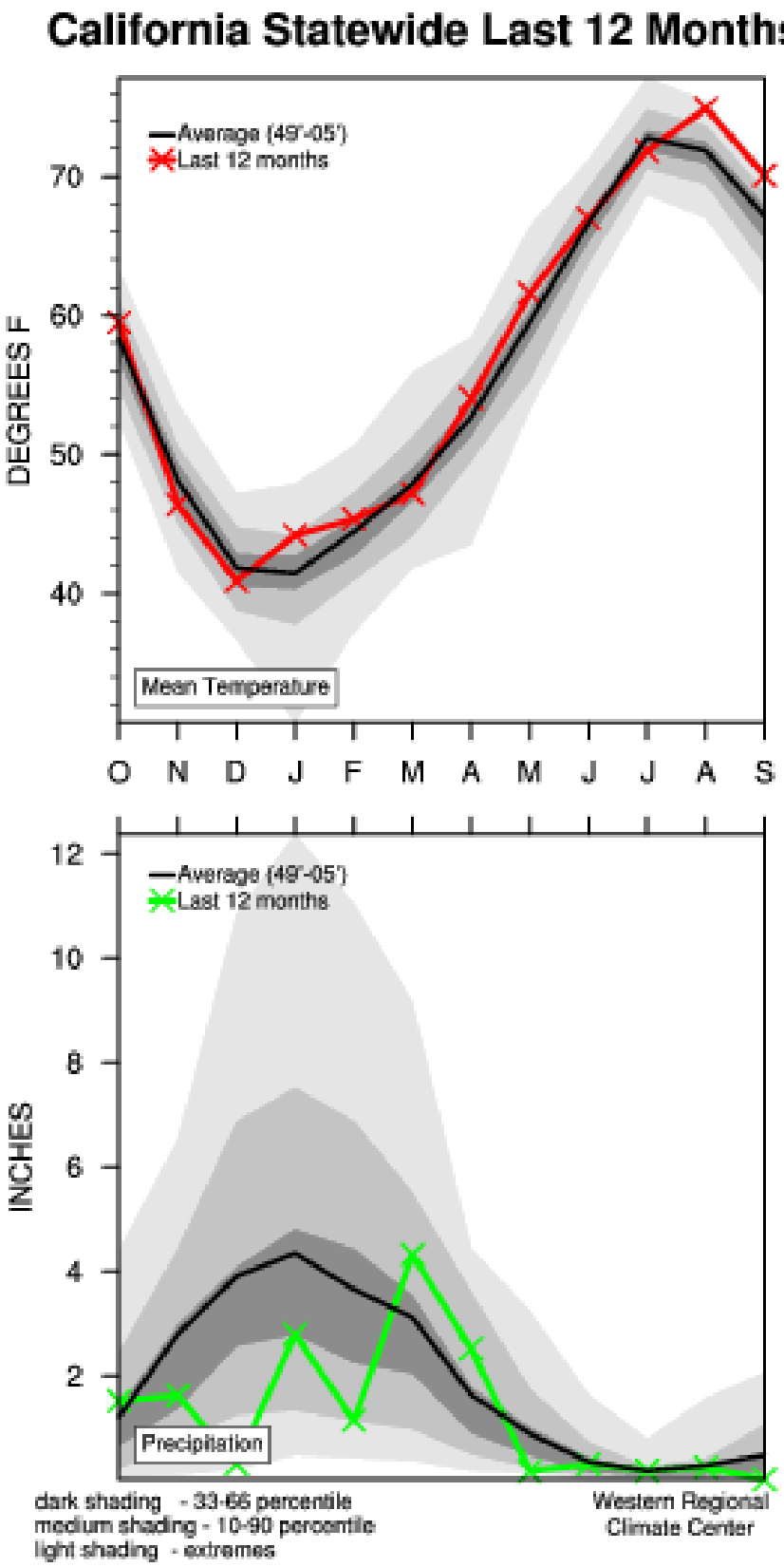
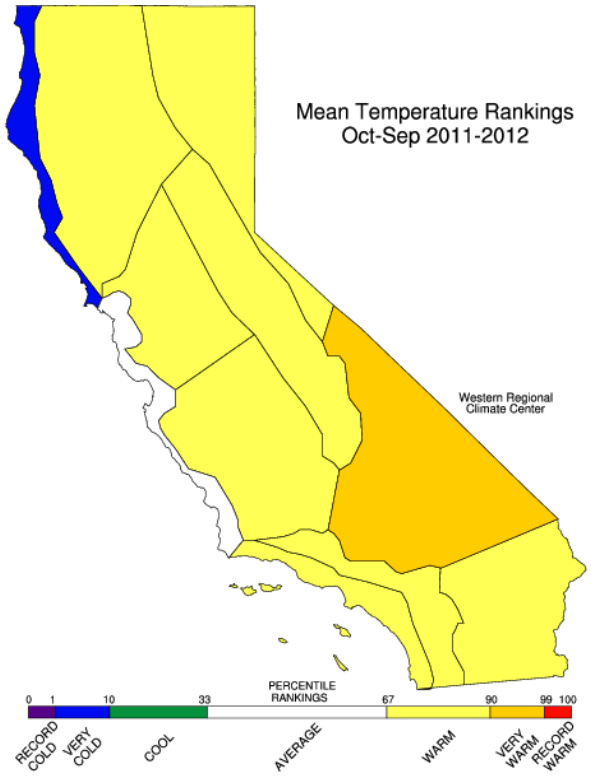
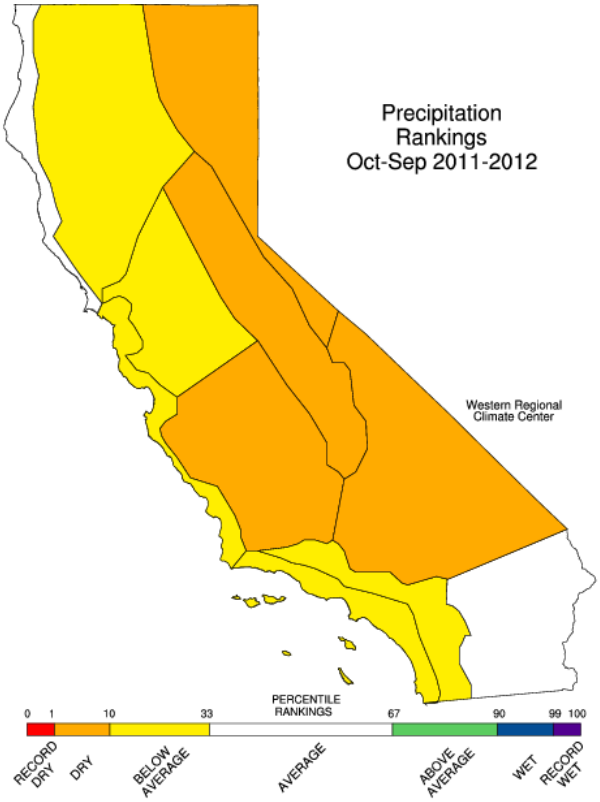
http://droughtmonitor.unl.edu

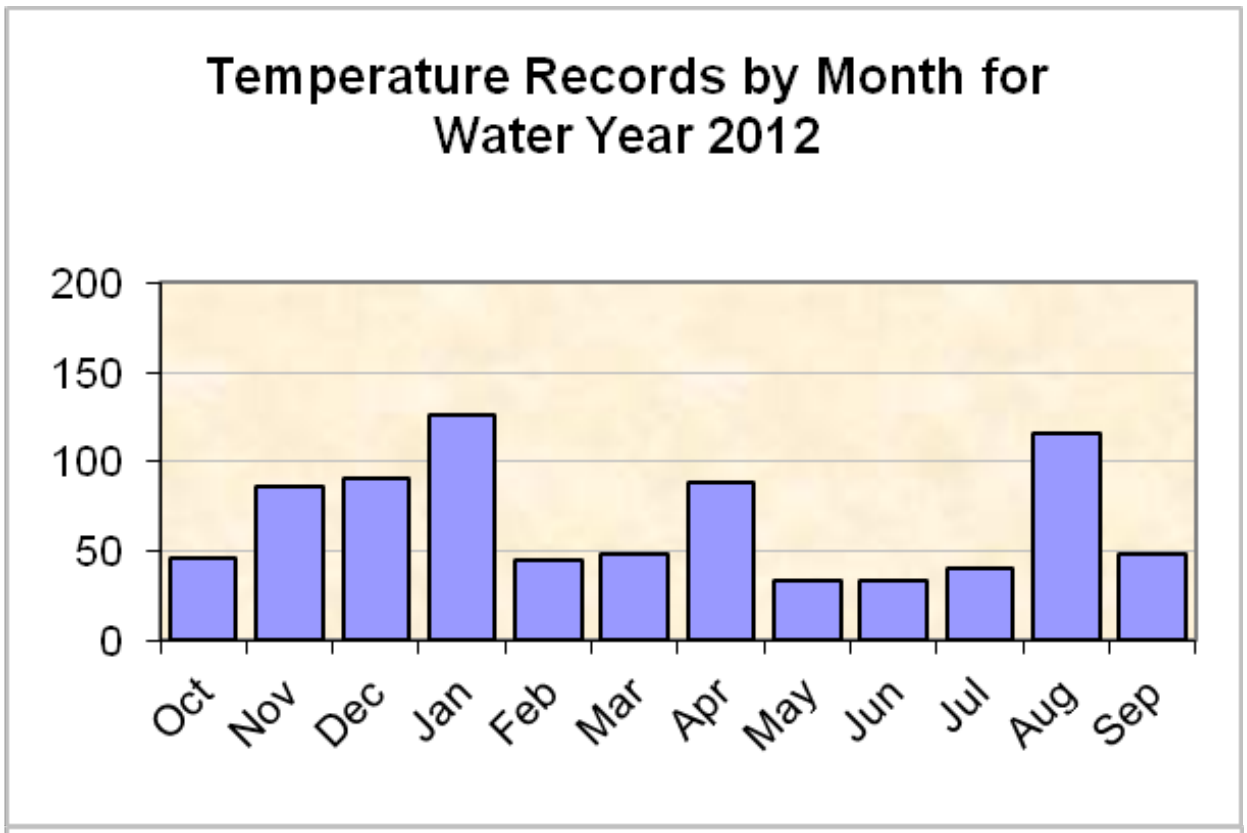
Released Thursday, September 27, 2012
Anthony Artusa, NOAA/NWS/NCEP/CPC

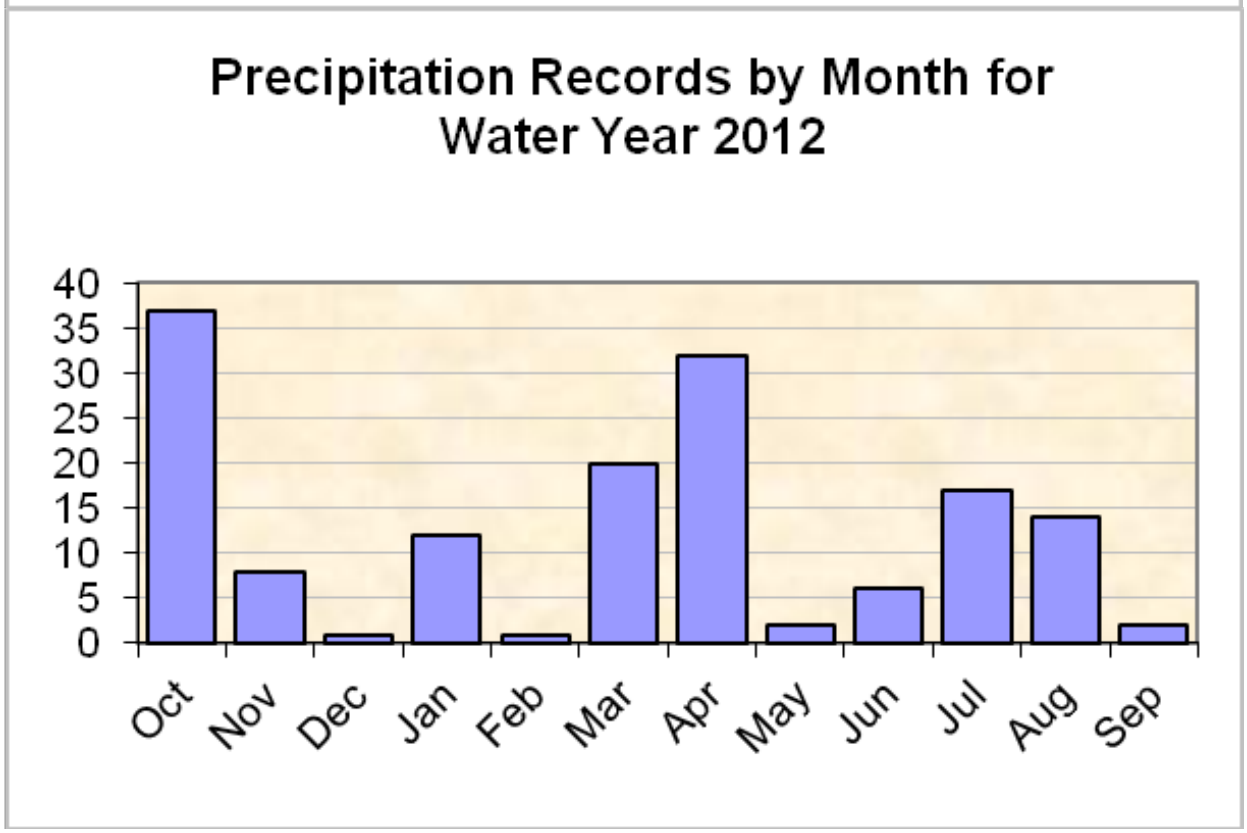

Daily Precipitation (inches x.xx), for the 24 hour period ending ~7:00 am
California 9/6/2012
0.0
Trace
0.01 - 0.03
0.04 - 0.06
0.07 - 0.15
0.16 - 0.35
0.36 - 0.52
0.53 - 0.58
Del Norte
Siskiyou
Modoc
Humboldt
Trinity
Shasta
Lassen
Tehama
Plumas
Mendocino
Glenn
Butte
Sierra
Lake
Colusa
Nevada
Yuba
Placer
Sonoma
Yolo
Napa
El Dorado
Solano
Alpine
Marin
Calaveras
San Francisco
San Joaquin
Tuolumne
Alameda
San Mateo
Stanislaus
Mono
Santa Clara
Mariposa
Santa Cruz
Merced
Madera
San Benito
Fresno
Monterey
Kings
Tulare
Inyo
San Luis Obispo
Kern
Santa Barbara
San Bernardino
Ventura
Los Angeles
Orange
Riverside
San Diego
Imperial

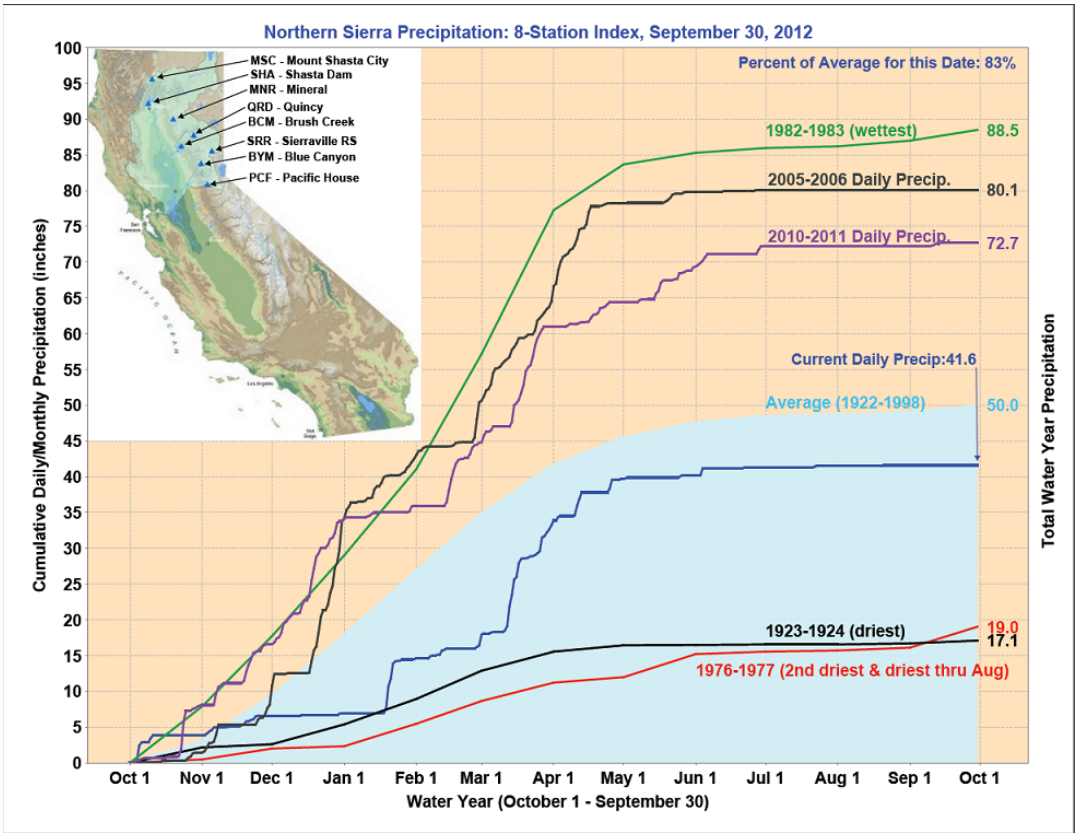

California Statewide Last 12 Months
Average (49'-05')
Last 12 months
DEGREES F
70
60
50
40
Mean Temperature
O N D J F M A M J J A S
Average (49'-05')
Last 12 months
INCHES
12
10
8
6
4
2
Precipitation
dark shading - 33-66 percentile
medium shading - 10-90 percentile
light shading - extremes
Western Regional
Climate Center

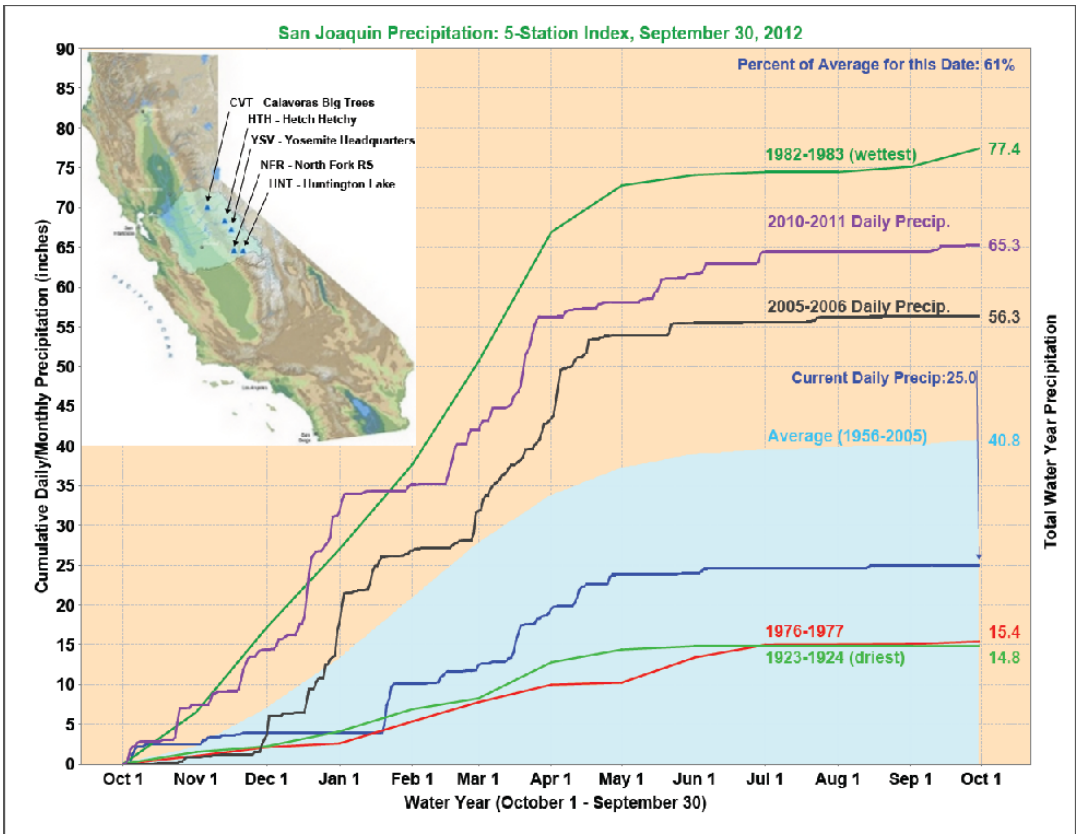

Mean Temperature Rankings
Oct-Sep 2011-2012
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD COLD
VERY COLD
COOL
AVERAGE
WARM
VERY WARM
RECORD WARM


Precipitation
Rankings
Oct-Sep 2011-2012
Western Regional
Climate Center
PERCENTILE
RANKINGS
0 1 10 33 67 90 99 100
RECORD DRY
DRY
BELOW AVERAGE
AVERAGE
ABOVE AVERAGE
WET
RECORD WET


Temperature Records by Month for Water Year 2012
200
150
100
50
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Precipitation Records by Month for Water Year 2012
40
35
30
25
20
15
10
5
0
Oct
Nov
Dec
Jan
Feb
Mar
Apr
May
Jun
Jul
Aug
Sep


Northern Sierra Precipitation: 8-Station Index, September 30, 2012
MSC - Mount Shasta City
SHA - Shasta Dam
MNR - Mineral
QRD - Quincy
BCM - Brush Creek
SRR - Sierraville RS
BYM - Blue Canyon
PCF - Pacific House
Percent of Average for this Date: 83%
1982-1983 (wettest)
88.5
2005-2006 Daily Precip.
80.1
2010-2011 Daily Precip.
72.7
Current Daily Precip:41.6
Average (1922-1998)
50.0
1923-1924 (driest)
19.0
17.1
1976-1977 (2nd driest & driest thru Aug)
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Water Year (October 1 - September 30)


San Joaquin Precipitation: 5-Station Index, September 30, 2012
CVT Calaveras Big Trees
HTH - Hetch Hetchy
YSV - Yosemite Headquarters
NFR - North Fork RS
HNT - Huntington Lake
Percent of Average for this Date: 61%
1982-1983 (wettest)
77.4
2010-2011 Daily Precip.
65.3
2005-2006 Daily Precip.
56.3
Current Daily Precip:25.0
Average (1956-2005)
40.8
1976-1977
15.4
1923-1924 (driest)
14.8
Cumulative Daily/Monthly Precipitation (inches)
Total Water Year Precipitation
Oct 1
Nov 1
Dec 1
Jan 1
Feb 1
Mar 1
Apr 1
May 1
Jun 1
Jul 1
Aug 1
Sep 1
Oct 1
Water Year (October 1 - September 30)